rest his glance on the lower part of a windmill still known as Green's Mill. This belonged to the father of the mathematician. The neighbours still hand on the tradition that the youthful genius worked within the walls of this building.

FRANK GRANGER.

NOTES.

THE KING opened the new Parliament in person on Tuesday, February 11. In his Speech reference was made to proposals to be brought forward for the promotion of a comprehensive scheme of afforestation and to "a Bill for the creation of a new Ministry to deal with public health, with a view to the establishment throughout the land of a scientific and enlightened health organisation to combat disease and to conserve the vigour of the race."

WE deeply regret to announce the death on February 9, in his eighty-fourth year, of Prof. G. Carey Foster, F.R.S., formerly principal of University College, London, and previously professor of physics there from 1865 to 1898. The funeral will be at Rickmansworth Cemetery to-morrow (Friday) at 3.15.

SIR RICHARD THRELFALL, formerly professor of physics in the University of Sydney, has been elected a member of the Athenæum Club under the provisions of the rule of the club which empowers the annual election by the committee of a certain number of persons "of distinguished eminence in science, literature, the arts, or for public service."

SIR RONALD ROSS, who is consultant in malaria to the War Office, has been appointed honorary consultant in malaria cases to the Ministry of Pensions.

WE regret to see the announcement of the death, at sixty-two years of age, of Prof. R. A. E. Blanchard, professor of parasitology in the faculty of medicine, University of Paris, and author of numerous contributions to zoology, physiology, comparative anatomy, and hygiene, in addition to his works on parasites and parasitic diseases.

THE death is announced, in his sixty-seventh year, of Dr. Rolla C. Carpenter, who occupied a chair of engineering at Cornell University from 1895 to 1917. Dr. Carpenter had been concerned at various times in important engineering enterprises of the cities of Baltimore, Brooklyn, and New York. In 1898 he was president of the American Society of Heating and Ventilating Engineers. He was the author of treatises on experimental engineering, heating and ventilation, and the gas-engine.

NEXT Tuesday, February 18, Capt. G. P. Thomson will give the first of two lectures at the Royal Institution on "Aeroplanes and the Great War." On Thursday, February 20, Prof. H. M. Lefroy will give the first of two lectures on "Insect Enemies of our Food Supplies"; and the second on Thursday, February 27, on "How Silk is Grown and Made." The Friday evening discourse on February 21 will be delivered by Mr. A. T. Hare on "Clock Escapements"; and on February 28 by Prof. J. A. McClelland on "Nuclei and Ions." On Saturday, February 22, at 3 o'clock, the Hon. J. W. Fortescue will give the first of two lectures on "The Empire's Share in England's Wars."

DURING the war the interests of patentees have been adversely affected, and probably none more so than those connected with the chemical industries. Many patentees have been unable to use or develop their patents, whilst in some cases where patents have been granted the mere publication of the grant has been forbidden. Attention is directed to these facts in the *Chemical Trade Journal* of January 25. Representations have already been made to the Controllers of Patents and of Munitions Inventions, but it is suggested that further co-ordinated action is desirable to get the position readjusted. Inasmuch as many holders of British patents have, in the national interest, freely allowed the use of their patents for the period of the war, it is claimed that the "life" of those patents should be extended correspondingly.

WE regret to learn from the *Journal des Observateurs* (vol. ii., No. 12) that M. Jérôme Coggia died on January 15. M. Coggia was born in 1849, and was assistant at Marseilles Observatory for more than fifty years. His colleagues there refer to him as "un astronome actif, habile et consciencieux, et un homme de cœur." He is best known for his discovery of the brilliant comet 1874 III., but he also discovered seven other comets and six minor planets. Another discoverer of a remarkable comet has passed away in the person of Mr. Edwin Holmes, a prominent member of the British Astronomical Association and a regular attendant at its meetings. The comet of short period that he found in November, 1892, was distinguished by two brilliant outbursts, after each of which it expanded rapidly and became difficult to see. It has been re-observed at two out of the three returns that it has made since then, but has never repeated its interesting behaviour of 1892.

THE deaths of the following engineers are announced in the *Engineer* and in *Engineering* for February 7:—Mr. Thomas Wright, late general works manager of the Dowson-Mason Gas Plant Co. He had been recognised for many years as an expert in the construction of coal- and gas-fired furnaces, and was a member of the Institution of Civil Engineers, the Institution of Mechanical Engineers, the Iron and Steel Institute, and the Faraday Society.—Mr. Edward Cecil Ingleby, who died on January 24 after a long illness, was a director of the firm of Ingleby and Co., Ltd., electrical engineers, and an associate member of the Institution of Civil Engineers.—Mr. George Cuming, who was in his forty-eighth year, and for thirty-two years had been connected with the firm of Messrs. Harland and Wolff, Belfast, latterly as engineering manager. He was a member of the Institution of Mechanical Engineers, and also of the Institution of Naval Architects, and was made an officer of the Order of the British Empire in 1917. He took an important part in the development of the steam turbine for steamship propulsion.

DESIGNERS of motor-cycles have for some time past felt that no adequate means exist to admit of their meeting together for the purpose of ventilating and discussing the difficulties of the many problems with which they are confronted from time to time. In consequence, a representation on the subject was recently placed before the Institution of Automobile Engineers at a conference attended by technical representatives of some of the motor-cycle manufacturing firms. The institution has now arranged for two meetings to be held at the Birmingham Chamber of Commerce expressly for the discussion of points connected with the design of motor-cycles. The first of these meetings will be held on Thursday, February 20, when Mr. D. S. Heather will read a paper entitled "A Survey of Current Motor-cycle Design"; and the second meeting will be held on Thursday, March 20, when Mr. Eric Caudwell will read a paper the title of which is not yet announced. Those who desire to be present at these meetings are invited to communicate with the secretary of the institution, 28 Victoria Street, Westminster, S.W.1.

INFLUENZA is now epidemic in Australia, is spreading in Victoria and South Australia, and is attended with a considerable mortality. In South Africa influenza is stated to have caused the death of 11,736 Europeans and 127,000 "coloured" and natives. With regard to the nature of the virus of influenza, it has been surmised of late that the influenza bacillus of Pfeiffer may not be the causative organism, but that an excessively minute, "filterable" micro-organism may be present, and evidence in favour of this view has been brought forward by Major-Gen. Sir J. Rose Bradford and Capts. E. F. Bashford and J. A. Wilson (*Lancet*, February 1, 1919, p. 169). They found present minute, rounded, coccus-like bodies measuring $0{\cdot}15\mu$ to $0{\cdot}5\mu$ in diameter, Gram positive, anaerobic, resisting heating to 56° C. for thirty minutes, and passing through Berkefeld N and V filters and a Massen porcelain filter. The organisms have been isolated from the blood, sputum, and pleural fluid, and obtained in cultivation (method not stated). The cultures inoculated into animals produce illness in guinea-pigs and monkeys with pneumonia and hæmorrhages. Similar experiments have been carried out with trench fever and nephritis, and organisms of the same type have been isolated in these diseases, cultures of which on inoculation produce respectively trench fever and nephritis. In the case of trench fever, the same organism was isolated from infected lice.

WE have received the first annual report of the Industrial Reconstruction Council, a purely educational corporation, with Sir Wilfrid Stokes as president and Mr. Ernest J. P. Benn as chairman. Prof. W. Ripper, Vice-Chancellor of the University of Sheffield, is treasurer and Prof. A. W. Kirkaldy, of Birmingham, a member of the executive, so that education of university grade is well represented. The object of the council, which was established in December, 1917, is to contribute to the solution of the problem of labour unrest by supplying information on industrial economics alike to employers and employed by means of lectures, conferences, and the distribution of printed matter, and, in particular, to make widely known the proposals of the Whitley Committee with reference to the self-government of industry by means of industrial councils and interim committees, and to urge the organisation of all trades, both employers and employed, so as to make the formation of industrial councils possible. To this end the council has held public meetings in the largest cities, and sent lecturers to address trade and other societies in more than forty centres. Some of the larger gatherings have been addressed by the Minister of Reconstruction, the Minister of Labour, the President of the Board of Trade, and the chairman of the Department of Scientific and Industrial Research. Since last September fortnightly lectures have been given on Wednesday afternoons in Saddlers' Hall, kindly lent by the Saddlers' Company, and fortnightly conferences have been held on Tuesday evenings in the hall of the Institute of Journalists. Sixty thousand copies of the council's pamphlet on "Trade Parliaments" have been distributed, besides much other literature. The offices of the council are at 2 Tudor Street, E.C.4.

THE Lieutenant-Governor of Bengal, in unveiling a bust of Sir Leonard Rogers at the Calcutta School of Tropical Medicine, paid a generous tribute to the work performed by that eminent physiologist. To him is due the successful treatment of the disease known as kala-azar, long a scourge in the Assam Valley. In connection with this investigation, he initiated a new treatment for dysentery, and discovered a vaccine used in cases of sprue. Sir Leonard Rogers's industry in these researches was immense. Besides important books, he has published more than 150 scientific papers, and he has never hesitated to announce to the world the results of his labours. To Sir Leonard Rogers the Calcutta School of Tropical Medicine owes its establishment, and no place could be more appropriate for the location of the bust of a scientific worker who has made important discoveries leading to the mitigation of various forms of disease.

IN a review on the subject of alcohol, based upon the report of the Central Control Board, Dean Wace records his personal impressions. He says:—"For some years I was engaged in writing leading articles at night, and when I returned home, between three and four o'clock in the morning, my brain was too excited for sleep; but a crust of bread and a little claret would give me prolonged and refreshing repose. My experience, in fact, in a hard-working life which has now extended to eighty-two years, has been that alcohol is bad to work upon, but invaluable to rest upon. It has enabled me, indeed, sometimes to do literary work at night after being engaged a great part of the day on the duties of my profession; but only on condition of my interposing a sort of semi-night between the two employments, by two or three hours' rest after dinner, with a good nap. There may be many modifications of this kind in the use of alcoholic drinks; but they are always mere variations of the principle which, after the verdict of this scientific jury, may now be taken to be firmly established—that the chief effect and use of alcohol is to promote rest, and the reinvigoration which rest brings" (*Quarterly Review*, No. 458, January, p. 63).

IN the issue of *Scientia* for September, 1918, Prof. Fraser Harris publishes an interesting paper directing attention to the functional inertia and momentum of living matter. By this Prof. Harris understands those properties in virtue of which the effect of a stimulus is not at once manifested, nor does the result cease immediately on cessation of the stimulus. The statement applies in a certain sense to all matter, and the key is doubtless, as the author points out, the inertia of the carbon atom. But it seems doubtful whether it is justifiable, or even illuminating, to place this property as an antagonist to that of excitability or the capacity of responding to the action of an external force. There seems to be a suggestion of the ancient confusion of thought in which inertia is regarded as a force. The manifestations of it, however, play an important part in physiological phenomena.

INTERESTING "Notes on Myriapoda," by Hilda and Graham Brade-Birks, furnish the Dartford Naturalists' Field Club with an occasional paper "reprinted from the *Lancashire and Cheshire Naturalist*, September and October, 1918." The authors assign to Kent twelve species of Chilopoda, of which four are luminous, and eight species of Diplopoda. Their notes on synonymy would have been more serviceable had they appended dates to the genera and species instead of relegating them to the concluding bibliography. There, too, the "Systema Naturæ" (printed "Systema Natura") is undated, as though there were only one edition of that famous work. In these days of expensive printing the enumeration of ever so many places where specimens have been captured could well have been spared, and the space devoted to concise definitions of the various items of classification. This would probably have been an easy task to these capable writers, and would have gone far to "prove an incentive to further faunistic work in the neighbourhood" in accordance with their express desire. Their list of authorities omits Leach's article in the "Edinburgh Encyclopædia," vol. vii., which carries the date of his *Cryptops hortensis* and his *Lithobius variegatus* back to 1813 alike for each genus and species.

THE Egyptian Government has recently published a useful booklet to supplement its circulars issued in connection with the administration of the law for the protection of birds beneficial to agriculture. This has been prepared by Capt. Flower and Mr. M. J. Nicoll, the director and assistant director of the Zoological Service. It treats of the principal birds protected, and gives their English, French, Arabic, and scientific names, their local status, and their size and coloration. In eight helpful coloured plates are depicted twenty-four of the forty species dealt with. Measures for the protection of these birds are especially necessary in Egypt on account of the ravages of hosts of insect pests, the chief natural enemies of which, the insectivorous birds, are, unfortunately, correspondingly scarce. To afford this protection a law was promulgated in 1912, and circulars have since been widely distributed giving, in various languages, the names of the scheduled species, forbidding their destruction, capture, sale, etc., and intimating the penalties to be inflicted upon those who contravene the Act. That these measures have met with considerable success as regards some species is well indicated in the case of the buff-backed heron, which is a great destroyer of locusts and other noxious insects. This bird had, previous to the protecting law, become reduced to a single colony; now it has greatly increased in numbers, and is to be found in many parts of the Delta. It is to be regretted, however, that the law has not been strictly observed as regards the smaller insectivorous birds. This seems to be, to a considerable degree, due to the fact that the permission granted under licences for the killing and capture of unprotected birds has been frequently misapplied for the destruction of protected species. These illegally acquired birds, after being denuded of their feathers, to render their identification difficult or impossible, are often exposed for sale. The final paragraph of the introduction to this interesting booklet is devoted to an earnest appeal to all who have the welfare of agriculture at heart to make every effort to protect the scheduled birds in the interests of the staple industry of the country.

MR. C. RAUNKIÄR (*Botanisk Tidsskrift*, 36 Bind, 3 Hefte, 1918) describes some experiments to determine to what degree the time of leafing is a constant character in the beech. In the case of marked individual trees, the relative periods of leafing proved to be constant in three successive seasons. Fruits of these trees were collected and sown, under uniform conditions, in the botanic garden at Copenhagen, and the tables of results show a striking correspondence between the mother and descendants with regard to leaf-time, and indicate that early or late leaf-time in the cases in question is genotypically determined. On the hypothesis that the genotypic basis of, for instance, very early leaf-time is a single factor, and either dominant or recessive, the author concludes that it is probably most reasonable to assume that the mother-plant is heterozygous with regard to the factor for leaf-time, and in that case very early leaf-time must be dominant. But it is scarcely likely, the author suggests, that the matter is so simple, and leaf-time is probably, in each individual case, conditioned by a complicated combination of genotypic factors, which at one time can operate in the same direction, and at another may counteract each other. The experiments show that there are not only early and normal beeches, but also a series that varies with regard to leaf-time from very early to very late. The most important point is that *Fagus sylvatica* comprises sub-species, isoreagents, that differ with regard to leaf-time.

THE value of quinine in combating malaria and other tropical fevers makes it most important that the Empire should be sure of adequate supplies of cinchona bark, from which the drug is obtained. An article on the future of the trade in cinchona bark in the Bulletin of the Imperial Institute (vol. xvi., No. 3) directs attention to a somewhat unsatisfactory state of affairs. It appears that for some years past the Dutch East Indies, and particularly Java, have had almost a monopoly in the production. In the years 1911–13 the average annual production of cinchona bark in Java was 22,880,000 lb. out of the world's total production of about 25,000,000 lb. In India, where the area under cinchona fluctuates a little, but, on the whole, decreases, the annual production is about 2,000,000 lb. Ceylon, which some thirty years ago had an annual output of more than 13,000,000 lb., has now practically ceased to be a producer. Eighty per cent. of the world's supply of this bark now finds its way to market at Amsterdam. The article contains many statistics relating to the trade in quinine. It is enough to mention that India's annual consumption of quinine is about 145,000 lb., of which about half is produced in the country and half imported. The home production of bark is inadequate to meet the demand for quinine in India. It would thus appear that a great part of the Empire's supply of quinine has to be imported from foreign countries. This shows the need for extending the cultivation of the cinchona tree under conditions which result in a maximum yield of quinine in the bark. The article concludes with some notes on experiments in this direction in St. Helena and (German) East Africa.

THE Journal of the Scottish Meteorological Society, with its tables for the year 1917, contains two or three communications of especial interest to meteorologists. "The Upper Air: Some Impressions Gained by Flying" is dealt with by Capt. C. K. M. Douglas, and forms the subject of an article in our pages this week. "Ground-Ice" is the subject of a communication by Dr. John Aitken. The paper is somewhat controversial, and deals chiefly with a communication by Mr. A. Watt on the same subject printed in a previous issue of the Journal. "The Climate and Meteorology of Antarctic and Sub-Antarctic Regions" is abridged from an address given by Mr. R. C. Mossman by request of the councils of the Royal Society of Edinburgh and of the Scottish Meteorological Society. The author states that our knowledge of Antarctic regions is limited chiefly to observations during the last twenty years, whilst prior to this our knowledge was confined exclusively to observations derived from summer voyages. With reference to the general circulation of the atmosphere, it is shown that easterly winds are commonly experienced in sub-polar regions associated with travelling cyclonic areas situated to the northward. In this connection reference is made to the National Antarctic Expedition, 1901–4, and to the daily synchronous charts throughout the four years drawn from the observations of the expedition augmented from other sources. Upper-air observations made with kites and balloons are said to be scanty, and most of the facts available are from the movements of high clouds. Pilot-balloon ascents, however, have at times shown that the stratosphere was as low as 4½ miles.

Light-filters made of a new yellow dye have just been introduced by the Eastman Kodak Co Picric acid being too unstable (filters made with it turn brown), and a more sharply cut absorption being sometimes desirable than that given by "filter yellow," Messrs. Mees and Clarke sought for a dye that would fulfil the desired conditions. They found that glucosephenylosazone gives almost as good absorption of the ultra-violet as "filter yellow," as well as a sharper cut on the other side of the band, and is satisfactorily stable. The actual derivative used, the osazone itself being insoluble in water, is the sodium salt of glucosephenylosazoneparacarboxylic acid, and for convenience they call it "Eastman yellow." The filters are made of three densities, one specially for aerial photography, and this has been adopted by the American forces. Further details with absorption curves are given in the *British Journal of Photography* for January 31.

An article on metric measurements appears in the January issue of *Cheap Steam*, a periodical issued by the well-known engineers, Messrs. Ed. Bennis and Co., Ltd. From the point of view of the writer of the article, the greatest advantage to be derived from the adoption of the metric system is the enabling of manufacturers to compete on more equal terms with foreign rivals in the world's markets. Inability or unwillingness of the British manufacturer to estimate for overseas clients in terms which they understand has lost many a contract to this country. One secret of Germany's rapid progress as a foreign trader was the promptitude with which she adapted her business methods to the habits and customs of the various nations with which she was anxious to deal, and she never annoyed and puzzled possible customers abroad by quoting quantities and prices in terms which they did not understand. In 1864 an Act was passed to render permissive the use of the metric system; in 1897 another Act was passed making the use of the system optional. The time is now ripe for making it compulsory.

The influence of the state of the atmosphere on the level of the sea has been very variously estimated, particularly as regards the relative importance of barometric pressure and wind. At one of the recent British Association geophysical discussions Col. Sir C. F. Close reviewed the subject, and described certain new data obtained by the Ordnance Survey (*Geographical Journal*, July, 1918). These showed that at the observation points chosen, on the coast of the Atlantic Ocean and the North Sea, the sea-level responds almost immediately to barometric variations. A rise or fall in the height of the mercury is associated with a fall or rise of sea-level of 13·5 times the amount (equivalent to the variation in a water-barometer). Changes of level due to winds cause some fluctuation in individual estimates of the ratio (from 7 to 20, roughly), but not sufficiently to mask the close connection between sea-level and barometric pressure. In a narrow, land-locked sea, however, it might be expected that the wind would have relatively greater influence, and this is confirmed by a recent study of the Baltic sea-level by Rolf Witting (*Öfv. af Finska Vet.-Soc. Förh.*, vol. lix., A, 13, Helsingfors, 1917). The purely hydrostatic effect of a gradient of barometric pressure over any region is to produce an opposite slope of the sea-surface. But such a distribution of atmospheric pressure is usually accompanied by winds directed along the isobars, with the higher pressure on the left (in the northern hemisphere). This tends to heap up the waters with a gradient perpendicular to the former one, and in the Baltic this slope appears to be about 1·8 times as great as the hydrostatic slope. The resultant gradient is rather more than twice the latter, and is inclined to it in azimuth at about 55°.

The largest plate-rolling mill in the world is described in an illustrated article in *Engineering* for January 24. This mill belongs to the Lukens Steel Co., of Coatesville, Pennsylvania. It is a four-high reversing type mill, 17 ft. wide on the rolls, and is capable of rolling plates up to 16 ft. in width, and circular plates a few inches wider. It is built on the principle of the two-high reversing plate-stand used in the British Isles, with the modification that the two finishing rolls are backed by two large supporting rolls. The latter rolls stiffen the mill and prevent springing of the operating rolls when rolling wide, thin plates, thus ensuring uniform thickness in the finished product. There are two 34 in. diameter by 204 in. working-face operating rolls of chilled iron with 27-in. necks, weighing about thirty tons each, and two 50 in. diameter backing rolls of cast-steel with 36-in. necks, weighing about sixty tons each. The mill stands about 40 ft. from the top of the screw-cover to the bottom of the shoes. The screw-down rig is of the well-known worm and worm-wheel design, and is driven by two 150-h.p. motors, one on each housing. The mill is driven by a twin tandem compound engine, having cylinders of 46 in. and 70 in. diameter by 60 in. stroke, and is fitted with a jack-shaft and a gear ratio of one to two, which renders it capable of giving an enormous torque. Mechanical tables are provided so arranged as to do away with hand-labour wherever possible.

Messrs. Longmans and Co.'s new list of announcements contains many books of scientific interest, some of which have already been referred to in these columns. Others are:—"Applied Aero-dynamics," L. Bairstow, illustrated; "Aeroplane Structures," A. J. S. Pippard and Capt. L. Pritchard, with a preface by L. Bairstow, illustrated; "Corrosion and Decay of Metals," Prof. C. H. Desch; "Lead and its Compounds," Dr. J. A. Smythe; "Boiler Chemistry," J. H. Paul; "The Rare Earth Metals," Dr. J. F. Spencer; "Chemical Affinity and Chemical Equilibrium," Dr. H. S. Taylor; a new edition of "Osmotic Pressure," Prof. A. Findlay; "Ships' Boats: Their Qualities, Construction, Equipment, and Launching Appliances," E. W. Blocksidge; and "Efficient Boiler Management, with Notes on the Firing of Coal-fired Reheating Furnaces," C. F. Wade. Messrs. Longmans also have in hand the third edition of "British Birds," A. Thorburn, illustrated, the first two volumes of which have been published. Vol. iii. is promised for March, and vol. iv. for April.

Mr. F. Edwards, 83 High Street, Marylebone, W.1, has just published Catalogue No. 386 of books, manuscripts, and engravings relating to India and Ceylon. It contains many rare works and a number of books of scientific interest, *e.g.* a complete set of the "Catalogue of the Birds in the British Museum," 27 vols.; Hooker's "Illustrations of Himalayan Plants"; Capt. W. V. Legge's "History of the Birds of Ceylon"; and vols. i. to v. of Moore's "Lepidoptera Indica." Mr. Edwards has also for disposal the Sanskrit library of the late Col. G. A. Jacob, comprising about 700 vols.

Messrs. Dulau and Co., Ltd., have just issued from their new address (34 Margaret Street, Cavendish Square, W.1) Catalogue No. 74 of some 1200 books on botany, agriculture, and zoology which they have for disposal. It gives particulars of many rare editions of works dealing with the subjects referred to, and should be of service to many readers of Nature. A feature of the catalogue is many of the earlier volumes of the British Museum Zoological Catalogues and Lists.